



DI&C Project & Lead-Plant Experiences

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Digital Experiences --- Agenda


- Why Digital Upgrades
- Digital Operating Experience at Oconee
- Lessons Learned with Oconee's LAR
- Digital Project Path Forward



2

Why Digital Upgrades (1 of 1)

- **Driving Forces for Digital Upgrades**
 - Existing plant systems are obsolete
 - Spare parts are limited
 - Component repairs are addressing near-term equipment issues
 - Elimination of single failure vulnerabilities through redundant equipment
 - Enhancements to system design and functions
 - Significantly improved on-line monitoring and channel check capability



3

Digital Operating Experience at Oconee

(1 of 2)

- **Digital Upgrades completed on Oconee Units:**
 - Integrated Control System (1996-1998)
 - Operator Aid Computer (1998-1999)
 - Main Turbine Control System (2002-2004)
 - Digital Control Rod Drive Control System
 - Turbine Supervisory Instrumentation
 - Foundation Fieldbus System for Instrument Loop Upgrades (Process Control System)
 - Electrical Generator Automatic Voltage Regulator

4

Digital Operating Experience at Oconee

(2 of 2)

- **Positive OE from Digital Upgrades:**
 - Replaced obsolete systems which had performance problems
 - Improved system and plant reliability by installing redundancy to eliminate single point vulnerabilities
 - Improved reactivity management by increasing system stability and reducing operator burden during power maneuvers
 - Significantly improved:
 - System monitoring
 - Online functional check capabilities
 - Improved diagnostic capabilities

5

Lessons Learned with Oconee's LAR (1 of 1)

- **For digital upgrades requiring NRC approval (RPS & ESPS), lessons learned by Oconee:**
 - Regulatory findings
 - Regulatory standards
 - High quality, accurate, and timely documents
 - Milestone schedule
 - Communications
 - NRC/Vendor/Utility Engineering strength

6

Digital Project Path Forward (1 of 1)

- **Interim Staff Guidance (ISG):**
 - Revise DI&C-ISG-02, ISG-04, & ISG-05
 - Create DI&C-ISG-06 & ISG-07
 - Roll ISG content into permanent guidance
- **Digital Project Workshops**
 - Lessons Learned (Oconee & Wolf Creek)
 - LAR Preparation using ISGs



7

DI&C Project & Lead-Plant Experiences

- Questions ?

- Items to carry to NEI ?



8
